STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
LAND USE PLANNING COMMISSION
P.O. BOX 307
WEST FARMINGTON, MAINE 04992

PAUL R. LEPAGE
GOVERNOR

WALTER E. WHITCOMB
COMMISSIONER

NICHOLAS D. LIVESAY
EXECUTIVE DIRECTOR

PERMIT

DEVELOPMENT PERMIT DP 4990

The staff of the Maine Land Use Planning Commission, after reviewing the application and supporting documents submitted by Longfellow Mountains Heritage Trails for Development Permit DP 4990, finds the following facts:

1. Applicant: Longfellow Mountains Heritage Trails
   c/o Larry Warren
   PO Box 92
   Kingfield, ME 04947

2. Date of Completed Application: August 23, 2016

3. Location of Proposal: Chain of Ponds Township, Franklin County
   Tax Plan 01, Lots #2 & #7

4. Zoning: (P-SL2) Shoreland Protection Subdistrict
   (P-WL2) Wetland Protection Subdistrict
   (M-GN) General Management Subdistrict

Proposal

5. The applicant is constructing a non-motorized recreational trail through Chain of Ponds Township. The applicant seeks approval to construct the following boardwalks in the trail:

   Site #1: An 8 ft. by 40 ft. boardwalk across a washout area along Horseshoe Stream. The boardwalk would not cross the stream, but would span an approximately 32 foot wide washout area along the stream and would be set back approximately 30 feet from the stream, and be elevated approximately 20 feet above the stream. The zoning at this site is (P-SL2) Shoreland Protection Subdistrict.

   The trail in the vicinity of Site #1 is located over an old logging road. The applicant states that it is not possible to relocate the trail to avoid the washout due to the potential presence of archaeological resources in the area outside of the previously disturbed trail corridor.

133 FYFE ROAD
WWW.MAINE.GOV/DACF/LUPC

maine DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: 207-670-7492
PHONE: 207-670-7493

Site #2: A 6 ft. by 28 ft. boardwalk, including a crossing of an unnamed stream. The boardwalk would be elevated approximately 18 inches above the stream and would provide an opening at least 2.5 times the cross-sectional area of the stream. The zoning at this site is (M-GN) General Management Subdistrict and(P-SL2) Shoreland Protection Subdistrict.

Site #3: A 6 ft. by 80 ft. boardwalk over an unmapped forested wetland. The zoning at this site is (M-GN) General Management Subdistrict.

Site #4: A 6 foot by 24 foot bridge across Halfmile Brook. The zoning at this site is (P-SL2) Shoreland Protection Subdistrict and (P-WL2) Wetland Protection Subdistrict.

Site #5.1: A 6 foot by 16 foot boardwalk across a drainage within a (P-WL2) Wetland Protection Subdistrict and (P-SL2) Shoreland Protection Subdistrict.

Site #5: A 6 foot by 34 foot boardwalk across a drainage within a (P-WL2) Wetland Protection Subdistrict and (P-SL2) Shoreland Protection Subdistrict. Woodchips would be placed in an approximately 6 foot by 38 foot area in the trail corridor extending from the easterly end of this boardwalk to provide additional protection from erosion.

Soil disturbance at all sites would be limited to the installation of 4" by 4" posts or 2" piping driven into the ground to support the boardwalks.

Sites #1 - #3 would be located over land owned by Ursa Major, LLC and Sites #4, #5 and #5.1 would be over land owned by the State of Maine. The applicant has obtained leases from both landowners for the proposed trail.

Wetland Impacts:

6. The proposal would impact a total of 528 square feet of mapped P-WL2 wetlands (Sites #5 and #5.1) by the placement of boardwalks and wood chips.

Site Visits:

7. Commission staff visited Site #1 on September 3, 2015 with representatives of the applicant and the Maine State Soil Scientist.

8. Commission staff visited Sites #2 - #5.1 on August 8, 2016 with a representative of the applicant, the Maine State Soil Scientist, and staff from the Maine Department of Inland Fisheries & Wildlife (MDIFW).

Review Criteria

9. Under the provisions of 12 M.R.S.A. section 685-B,4(C) of the Commission's Statutes, the Commission may not approve an application unless adequate provision has been made for fitting the proposal harmoniously into the existing natural environment in order to ensure there

will be no undue adverse effect on existing uses, scenic character and natural and historic resources in the area likely to be affected by the proposal.

10. Trails are an allowed use without a permit within the (M-GN) General Management Subdistrict under the provisions of Section 10.22,A,3,a(7) of the Commission's Land Use Districts and Standards. Trails are an allowed use without a permit, subject to standards and provided that they are constructed and maintained so as to reasonably avoid sedimentation of water bodies, within the (P-SL2) Shoreland Protection Subdistrict and the (P-WL2) Wetland Protection Subdistrict under the provisions of Section 10.23,L,3,b(12) and Section 10.23,N,3,b(13) of the Commission's Land Use Districts and Standards, respectively.

    Structures that are essential for the exercise of allowed uses in the (M-GN) General Management Subdistrict, (P-SL2) Shoreland Protection Subdistrict and (P-WL2) Wetland Protection Subdistrict are allowed upon the issuance of a permit from the Commission under the provisions of Section 10.22,A,3,c(26), Section 10.23,L,3,c(26) and Section 10.23,N,3,c(18), respectively.

11. Crossings of minor flowing waters within the (P-SL2) Shoreland Protection Subdistrict and (P-WL2) Wetland Protection Subdistrict are an allowed use without a permit, subject to standards, under the provisions of Section 10.23,L,3,b(13) and Section 10.23,N,3,b(14) of the Commission's Land Use Districts and Standards, respectively.

    Section 10.27,D of the Commission's Land Use Districts and Standards specifies the Commission's standards for water crossings. Under the provisions of Section 10.27,D,9, trail crossings of minor flowing waters that include the construction of abutment or piers must meet the applicable provisions of Sections 10.27,D,2,4,5, 6, 10, and 11.

12. Under the provisions of Section 10.23,N,3,b(3) of the Commission's Land Use Districts and Standards, alterations of less than 4,300 square feet of a P-WL2 or P-WL3 wetland are allowed without a permit.

13. Under provisions of Section 10.26,D,2,a of the Commission's Land Use Districts and Standards the minimum required setbacks for non-residential structures from the normal high water mark of streams is 75 feet.

14. Under provisions of Section 10.26,G,5 of the Commission's Land Use Districts and Standards an exception may be made to the shoreline, road, and/or property line setback requirements for structures where the Commission finds that such structures must be located near to the shoreline, road, or property line due to the nature of their use.

15. Section 10.25 of the Commission's Land Use Districts and Standards specifies review standards for structures and uses within the Commission's jurisdiction that require permit approval from the Commission. Section 10.25 includes the following development standards:

    A. *Section 10.25,E,2,b –Historic Features:* If any portion of a subdivision or commercial, industrial or other nonresidential project site includes an archaeologically sensitive area or a structure listed in the National Register of Historic Places, or is considered by the Maine

Historic Preservation Commission or other pertinent authority as likely to contain a significant archaeological site or structure, the applicant shall conduct archaeological surveys or submit information on the structure, as requested by the appropriate authority. If a significant archaeological site or structure is located in the project area, the applicant shall demonstrate that there will be no undue adverse impact to the archaeological site or structure, either by project design, physical or legal protection, or by appropriate archaeological excavation or mitigation.

B. *Section 10.25,G - Soil Suitability:* Requires that a site specific soil survey be conducted for all non-residential development. Section 10.25,G,1,b requires that a Class A high intensity soil survey be submitted for areas of proposed soil disturbance within new non-residential development. Under the provisions of Section 10.25,G,1,e(4), the Commission may waive one or more of the requirements for a Class A high intensity soil survey where the Commission determines that the high intensity soil survey is unnecessary for its review.

Review Agency Comments

16. The Maine Department of Inland Fisheries & Wildlife comments that sites #2 - #5.1 are located within a moderate value Inland Waterfowl and Wading Bird Habitat (IWWH). Most of the project will occur in an alder dominated portion of the 250 foot vegetated upland buffer zone for the habitat, and will cross a narrow section of the IWWH associated with Halfmile Brook. The project will have minimal impact on the IWWH provided the following recommendations are implemented:

    A. The boardwalks and associated trail are constructed as described in the application and no additional side trails or boardwalks are subsequently proposed or constructed.

    B. The removal of trees and or shrubs for the trail and boardwalk within the IWWH is limited to 6 feet.

    C. The supports for the crossing of Halfmile Brook (Site #4) are constructed in the locations marked during the August 8, 2016 site visit, set to provide an approximately 1.2 bankful width stream crossing

    D. Floating puncheon style of construction is preferred for the proposed boardwalks at sites #2, #3 and #5 and #5.1. However, to the extent practical boardwalks should be elveated over the stream or wetland so that the bottom of the boardwalk planking is elevated 12 to 18 inches above the ground or water level. This will allow aquatic and semi-aquatic wildlife species to move freely across the wetland. Corduroy timbers and slash should be removed at Site #3 to facilitiate passage under the boardwalk.

    E. Should the proposed boardwalks become damaged or no longer used, the debris and/or boardwalk should be removed.

17. The Maine State Soil Scientist has no specific recommendations regarding Sites #1, #3 or #5.1. He recommends the following measures for Sites #2, #4 and #5 as discussed during the August 8, 2016 site visits:

    Site #2: Place wood chips in the trail approaches on either side of the proposed boardwalk/stream crossing.

    Site #4: Cut only the tops of the alders at the ends of the bridge crossing of the stream, leaving the alder roots in the bank to help stabilize the bank.

    Site #5: Place wood chips in the trail from the end of the board walk to the upland edge of the wetland, in an area of approximately 6 feet wide by 38 feet long.

18. The Maine Natural Areas Program states that it has no records of rare botanical features within the project sites.

19. The Maine Historic Preservation Commission requested a Phase I archeaological survey of Sites #2 - #5.1 to determine whether there are any significant archaeological sites present. The applicant subsequently retained Northeast Archaeology Research Center, Inc. to conduct the requested archaeological survey. The Center states that it found no Native American or historic Euroamerican archaeological material and recommends no further archaeological work. The Maine Historic Preservation Commission states that, based upon the Center's survey and report, the proposal will not impact any archaeological sites.

20. The facts are otherwise as represented in Development Permit Application DP 4990 and supporting documents.

Based upon the above Findings, the staff concludes that:

1. Site #4, being solely a trail crossing of a minor flowing water (Halfmile Brook), is allowed without a permit, subject to standards, under the provisions of Section 10.23,L,3,b(13) and Section 10.23,N,3,b(14) of the Commission's Land Use Districts and Standards, provided that it complies with the the applicable provisions of Sections 10.27,D,2,4,5, 6, 10, and 11 of the Commission's standards for water crossings.

2. The boardwalks at sites #1, #2, #3, #5 and #5.1 are allowed upon an issuance of a permit from the Commission under the provisions of Sections 10.22,A,3,c(26); 10.23,L,3,c(26); and 10.23,N,3,c(18) of the Commission's standards.

3. The minimum stream setback requirement of 100 feet for non-residential structures may be reduced as proposed by the applicant for the boardwalks at Sites #1, #2, #5 and #5.1 due to the nature of their use as part of an extensive recreational trail that can not be routed around the washout at Site #1, and can not practically be routed around all wetlands.

4. The Commission may waive the requirement for an on-site soils survey for the currently proposed development under the provisions of Section 10.25,G,1,e(4) of the Commission's

standards based upon the Maine State Soil Scientist's observations on-site and given the minimal level of soil disturbacne currently proposed.

5. The proposal complies with Section 10.25,E,2,b of the Commission's Land Use Districts and Standards regarding historical resources in that the applicant has demonstrated that the proposal will not have any impact on historical resources based upon the archaeological survey report it submitted, and the Maine Historic Preservation Commission's comments, as discussed under Finding of Fact #19.

6. The proposal complies with the provisions of 12 M.R.S.A. section 685-B,4(C) of the Commission's Statutes, in that there will be no undue adverse effect on natural and historic resources based upon the comments of Maine Natural Areas Program and Maine Historic Preservation Commission; and provided that the recommendations of the Maine State Soil Scientist and Maine Department of Inland Fisheries & Wildlife are implemented.

7. If carried out in compliance with the Conditions below, the proposal will meet the Criteria for Approval, Section 685-B(4) of the Commission's Statutes, 12 M.R.S.A.

Therefore, the staff approves the application of Longfellow Mountains Trails with the following conditions:

1. The Standard Conditions for Development Permits (ver. 4/04), a copy of which is attached.

2. The permitted trail must be constructed and maintained so that it does not erode.

3. The stream crossing at Site #2 must be constructed in accordance with the provisions of Sections 10.27,D,2,4,5,6,10 and 11 of the Commission's standards for roads and water crossings, a copy of which is attached.

4. Wood chips shall be placed in the trail approaches on either side of the proposed boardwalk/stream crossing at Site #2. Wood chips shall also be placed in the trail from the upland edge of the wetland to the nearest end of the board walk at site #5, in an area of approximately 6 feet wide by 38 feet long.

5. The removal of trees and or shrubs for the trail and boardwalks is limited to 6 feet.

6. Boardwalks shall be constructed so that the bottom of the boardwalk planking as elevated 12 to 18 inches above the ground or stream level.

7. Corduroy timbers and slash shall be removed at Site #3 to facilitiate passage under the permitted boardwalk.

8. If use of any or all of the permitted boardwalks is discontinued, the abandoned boardwalk(s) and associated debris shall be removed from the site and disposed of in a proper manner, in compliance with applicable state and federal solid waste laws and rules.

9. The scenic character and healthful condition of the area covered under this permit must be maintained. The area must be kept free of litter, trash, junk cars and other vehicles, and any other materials that may constitute a hazardous or nuisance condition.

10. The permittee shall secure and comply with all applicable licenses, permits, authorizations, and requirements of all federal, state, and local agencies.

11. Once construction is complete, the permittee shall submit a self-certification form, notifying the Commission that all conditions of approval of this permit have been met. The permittee shall submit all information requested by the Commission demonstrating compliance with the terms of this permit.

This permit is approved only upon the above stated conditions and remains valid only if the permittee complies with all of these conditions. In addition, any person aggrieved by this decision of the staff may, within 30 days, request that the Commission review the decision.

DONE AND DATED AT WEST FARMINGTON, MAINE, THIS 23RD DAY OF SEPTEMBER, 2016.

By: Sara J. Brisk
for Nicholas Livesay, Director

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
LAND USE PLANNING COMMISSION
22 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0022

STANDARD CONDITIONS OF APPROVAL FOR ALL DEVELOPMENT PERMITS

1. The permit certificate must be posted in a visible location on your property during development of the site and construction of all structures approved by this permit.

2. This permit is dependent upon and limited to the proposal as set forth in the application and supporting documents, except as modified by the Commission in granting this permit. Any variation therefrom is subject to the prior review and approval of the Maine Land Use Planning Commission. Any variation from the application or the conditions of approval undertaken without approval of the Commission constitutes a violation of Land Use Planning Commission law.

3. Construction activities authorized in this permit must be substantially started within two (2) years of the effective date of this permit and substantially completed within five (5) years of the effective date of this permit. If such construction activities are not started and completed within this time limitation, this permit shall lapse and no activities shall then occur unless and until a new permit has been granted by the Commission.

4. The recipient of this permit ("permittee") shall secure and comply with all applicable licenses, permits, and authorizations of all federal, state and local agencies including, but not limited to, natural resources protection and air and water pollution control regulations and the Subsurface Wastewater Disposal Rules of the Maine Department of Environmental Protection and the Maine Department of Human Services.

5. Setbacks of all structures, including accessory structures, from waterbodies, roads and property boundary lines must be as specified in conditions of the permit approval.

6. In the event the permittee should sell or lease this property, the buyer or lessee shall be provided a copy of the approved permit and advised of the conditions of approval. The new owner or lessee must contact the Land Use Planning Commission to have the permit transferred into his/her name and to reflect any changes proposed from the original application and permit approval.

7. The scenic character and healthful condition of the area covered under this permit must be maintained. The area must be kept free of litter, trash, junk cars and other vehicles, and any other materials that may constitute a hazardous or nuisance condition.

8. The permittee shall not advertise Land Use Planning Commission approval without first obtaining Commission approval for such advertising. Any such advertising shall refer to this permit only if it also notes that the permit is subject to conditions of approval.

9. Once construction is complete, the permittee shall notify the Commission that all requirements and conditions of approval have been met. The permittee shall submit all information requested by the Commission demonstrating compliance with the terms of the application and the conditions of approval. Following notification of completion, the Commission's staff may arrange and conduct a compliance inspection.

Administrative Policy Revised 04/04

D. ROADS AND WATER CROSSINGS

Roads and water crossings not in conformance with the standards of this section may be allowed upon issuance of a permit from the Commission provided that such types of activities are allowed in the subdistrict involved. An applicant for such permit shall show by a preponderance of the evidence that the proposed activity, which is not in conformance with the standards of this section, shall be conducted in a manner which produces no undue adverse impact upon the resources and uses in the area.

The following road and water crossing requirements shall apply in P-WL1, P-WL2, P-SL, P-FP, P-GP subdistricts and all development subdistricts:

1. The following requirements shall apply to construction and maintenance of roads:

a. All cut or fill banks and areas of exposed mineral soil outside the roadbed within 75 feet of a flowing water, body of standing water, coastal wetland, or freshwater wetland shall be revegetated or otherwise stabilized so as to prevent erosion and sedimentation of water bodies or wetlands;

b. Road banks shall have a slope no steeper than 2 horizontal to 1 vertical;

c. Drainage ditches shall be provided so as to effectively control water entering and leaving the road area. Such drainage ditches will be properly stabilized so that the potential for unreasonable erosion does not exist;

d. In order to prevent road surface drainage from directly entering water bodies or wetlands, roads and their associated drainage ditches shall be located, constructed, and maintained so as to provide an unscarified filter strip, of at least the width indicated below, between the exposed mineral soil of the road and the normal high water mark of a surface water body or upland edge of a wetland:

Average Slope of Land Between Exposed Mineral Soil and Normal High Water Mark (Percent)	**Width of Strip Between Exposed Mineral Soil and Normal High Water Mark** (Feet Along Surface of the Ground)
0	25
10	45
20	65
30	85
40	105
50	125
60	145
70	165

Table 10.27,D-1. Unscarified filter strip width requirements for exposed mineral soil created by roads and their associated drainage ditches.

This requirement shall not apply to road approaches to water crossings or wetlands.

e. Drainage ditches for roads approaching a water crossing or wetland shall be designed, constructed, and maintained to empty into an unscarified filter strip, of at least the width indicated in the table set forth in Section 10.27,D,1,d above, between the outflow point of the ditch and the normal high water mark of the water or the upland edge of a wetland. Where such filter strip is impracticable, appropriate techniques shall be used to reasonably

avoid sedimentation of the water body or wetland. Such techniques may include the installation of sump holes or settling basins, and/or the effective use of additional ditch relief culverts and ditch water turnouts placed so as to reasonably avoid sedimentation of the water body or wetland;

f. Ditch relief (cross drainage) culverts, drainage dips and water turnouts will be installed in a manner effective in getting drainage onto unscarified filter strips before the flow in the road or its drainage ditches gains sufficient volume or head to erode the road or ditch.

(1) Drainage dips may be used in place of ditch relief culverts only where the road grade is 10% or less;

(2) On roads having slopes greater than 10%, ditch relief culverts shall be placed across the road at approximately a 30 degree angle downslope from a line perpendicular to the center line of the road;

(3) Ditch relief culverts, drainage dips and water turnouts shall direct drainage onto unscarified filter strips as required in Section 10.27,D,1,d and e above;

(4) Ditch relief culverts shall be sufficiently sized and properly installed in order to allow for effective functioning, and their inlet and outlet ends shall be stabilized with appropriate materials; and

(5) Ditch relief culverts, drainage dips and associated water turnouts shall be spaced along the road at intervals no greater than indicated in the following table:

Road Grade (Percent)	**Spacing** (Feet)
0-2	500-300
3-5	250-180
6-10	167-140
11-15	136-127
16-20	125-120
21+	100

Table 10.27,D-2. Spacing requirements for drainage dips and associated water turnouts.

2. The following requirements shall apply to water crossings when surface waters are unfrozen:

a. Bridges and culverts shall be installed and maintained to provide an opening sufficient in size and structure to accommodate 10 year frequency water flows or with a cross-sectional area at least equal to 2 ½ times the cross-sectional area of the flowing water.

b. Culvert and bridge sizes may be smaller than provided in Section 10.27,D,2,a if techniques are employed such that in the event of culvert or bridge failure, the natural course of water flow is reasonably maintained and sedimentation of the water body is reasonably avoided; such techniques may include, but are not limited to, the effective use of any or all of the following:

(1) Removing culverts prior to the onset of frozen ground conditions;

(2) Using water bars in conjunction with culverts; or

(3) Using road dips in conjunction with culverts.

c. Culverts utilized in water crossings shall:

(1) Be installed at or below stream bed elevation;

(2) Be seated on firm ground;

(3) Have soil compacted at least halfway up the side of the culvert;

(4) Be covered by soil to a minimum depth of 1 foot or according to the culvert manufacturer's specifications, whichever is greater; and

(5) Have a headwall at the inlet end which is adequately stabilized by rip-rap or other suitable means to reasonably avoid erosion of material around the culvert.

3. The design and construction of land management road systems through wetlands, other than those areas below the normal high water mark of standing or flowing waters, must avoid wetlands unless there are no reasonable alternatives, and must maintain the existing hydrology of wetlands.

To maintain the existing hydrology of wetlands, road drainage designs shall provide cross drainage of the water on the surface and in the top 12 inches of soil in wetlands during both flooded and low water conditions so as to neither create permanent changes in wetland water levels nor alter wetland drainage patterns. This shall be accomplished through the incorporation of culverts or porous layers at appropriate levels in the road fill to pass water at its normal level through the road corridor. Where culverts or other cross-drainage structures are not used, all fills shall consist of free draining granular material.

To accomplish the above, the following requirements apply:

a. Road construction on mineral soils or those with surface organic layers up to 4 feet in thickness.

(1) Fill may be placed directly on the organic surface compressing or displacing the organic material until equilibrium is reached. With this method, culverts or other cross-drainage structures are used instead of porous layers to move surface and subsurface flows through the road fill material.

(a) For road construction on mineral soils or those with surface organic layers less than 16 inches in thickness, culverts or other cross-drainage structures shall be appropriately sized and placed at each end of each wetland crossing and at the lowest elevation on the road centerline with additional culverts at intermediate low points as necessary to provide adequate cross drainage. Culverts or other cross-drainage structures shall be placed at maximum intervals of 300 feet.

(b) For road construction on surface organic layers in excess of 16 inches but less than 4 feet in thickness, cross drainage must be provided by placing culverts at each end of each wetland crossing and at the lowest elevation on the road centerline with additional culverts at intermediate low points as necessary to provide adequate cross drainage. Culverts or other cross-drainage structures shall be placed at maximum 300-foot intervals. Culverts shall be a minimum of 24 inches in diameter, or the functional equivalent, and buried halfway below the soil surface.

(c) Where necessary to maintain existing water flows and levels in wetlands, ditches parallel to the road centerline shall be constructed along the toe of the fill to collect surface and subsurface water, carry it through the culvert(s) and redistribute it on the other side. Unditched breaks shall be left midway between culverts to prevent channelization.

(2) Alternatively, a porous layer may be created to move surface and subsurface flows through the road fill materials. If a porous layer is used, geotextile fabric must be placed above and below fill material to increase the bearing strength of the road and to preserve the bearing strength of fill material by preventing contamination with fine soil particles.

b. Road construction on soils with organic layers in excess of 4 feet in thickness.

(1) Such construction shall only take place under frozen ground conditions.

(2) Geotextile fabric shall be placed directly on the soil surface. Road fill or log corduroy shall then be placed on the geotextile fabric.

(3) Cross drainage shall be provided by either a continuous porous layer or appropriate placement of culverts or other cross-drainage structures and ditching as specified below:

(a) A continuous porous layer or layers shall be constructed by placement of one or more layers of wood corduroy and/or large stone or chunkwood separated from adjacent fill layers by geotextile fabric placed above and below the porous layer(s) such that continuous cross drainage is provided in the top 12 inches of the organic layer; or

(b) Cross drainage culverts or other cross-drainage structures shall be placed at points where they will receive the greatest support. Culverts or other cross-drainage structures shall be a minimum of 24 inches in diameter, or the functional equivalent, and buried halfway below the soil surface. Where necessary to maintain existing water flows and levels in wetlands, ditches parallel to the roadbed on both sides shall be used to collect surface and subsurface water, carry it through the culvert(s) and redistribute it on the other side. Such ditches shall be located three times the depth of the organic layer from the edge of the road fill. Unditched breaks shall be left midway between culverts to prevent channelization.

4. Ditches, culverts, bridges, dips, water turnouts and other water control installations associated with roads shall be maintained on a regular basis to assure effective functioning.

5. Maintenance of the above required water control installations shall continue until the road is discontinued and put to bed by taking the following actions:

   a. Water bars shall:

      (1) Be constructed and maintained across the road at intervals established below:

Road Grade (Percent)	Distance Between Water Bars (Feet)
0-2	250
3-5	200-135
6-10	100-80
11-15	80-60
16-20	60-45
21+	40

Table 10.27,D-3. Spacing requirements for water bars.

      (2) Be constructed at approximately 30 degrees downslope from the line perpendicular to the center line of the road;

      (3) Be constructed so as to reasonably avoid surface water flowing over or under the water bar; and

      (4) Extend sufficient distance beyond the traveled way so that water does not reenter the road surface.

   b. Any bridge or water crossing culvert in such road shall satisfy one of the following requirements:

      (1) It shall be designed to provide an opening sufficient in size and structure to accommodate 25 year frequency water flows;

      (2) It shall be designed to provide an opening with a cross-sectional area at least 3 ½ times the cross-sectional area of the flowing water; or

      (3) It shall be dismantled and removed in a fashion so as to reasonably avoid sedimentation of the water body.

6. Provided they are properly applied and used for circumstances for which they are designed, methods including but not limited to the following are acceptable to the Commission as means of calculating the 10 and 25 year frequency water flows and thereby determining crossing sizes as required in Section 10.27,D,2 and 5:

   a. The USDA Soil Conservation Service (SCS) Methods; specifically: "Urban Hydrology for Small Watersheds," June 1986 Soil Conservation Service Technical Release #55.

   b. The United States Geological Survey Series; specifically: U.S.G.S. Maine Water Science Office. 1999. "Estimating the Magnitude of Peak Flows for Streams in Maine for Selected Recurrence Intervals." WRI 99-4008.

7. Extension, enlargement or resumption of use of presently existing roads, which are not in conformity with the provisions of Section 10.27,D, are subject to the provisions of Section 10.11.

8. Publicly owned roads may be constructed in a fashion that is not in strict conformity with the provisions of this section, provided that other measures are applied that are effective in reasonably avoiding sedimentation of surface waters.

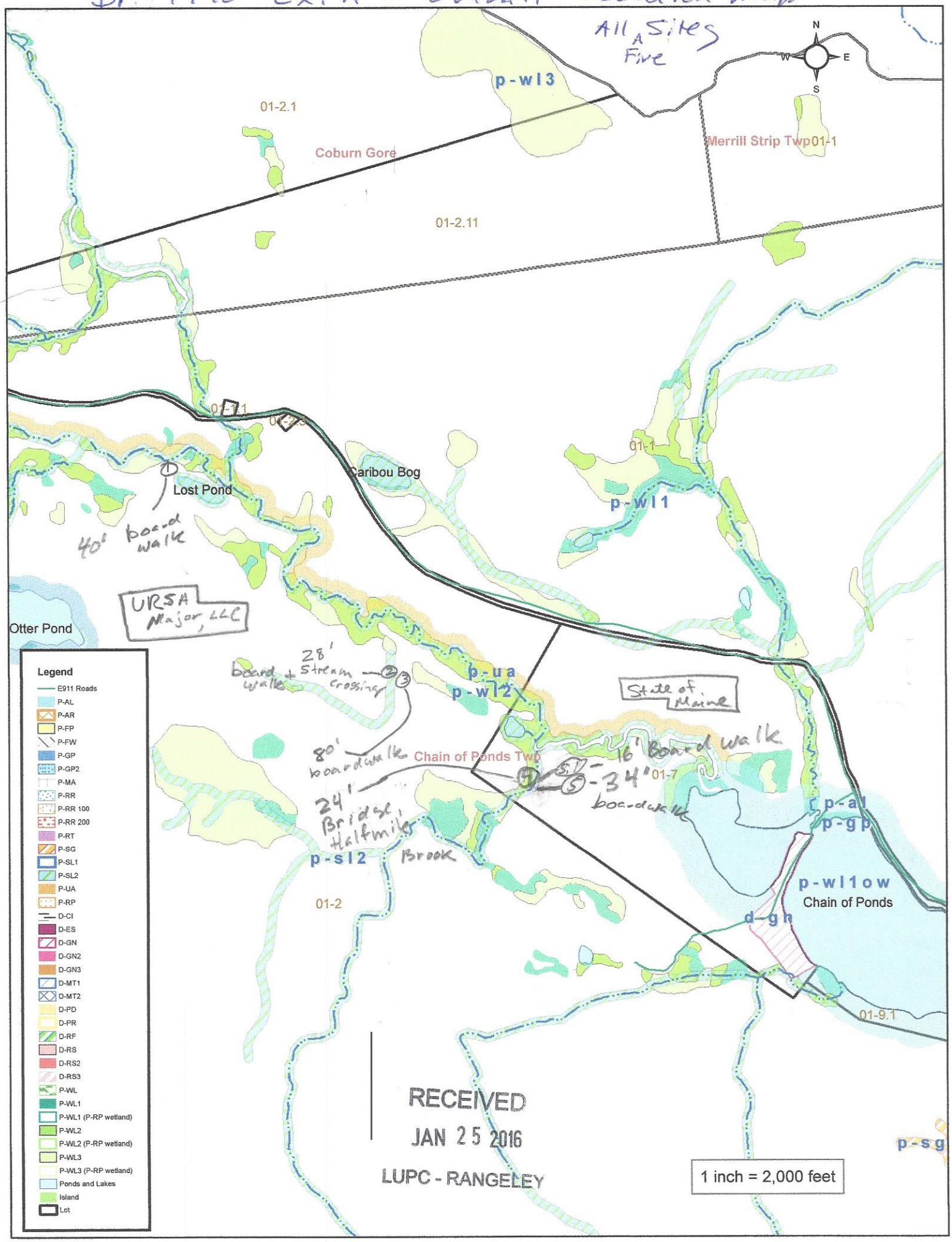
9. Except that Section 10.27,D,10 below always applies, trail crossings of minor flowing waters shall be exempt from the standards of Section 10.27,D, provided such crossings are constructed in a manner that causes no disturbance to the stream bed, and no substantial disturbance to the banks or shoreland areas in the vicinity of the crossing, and provided such crossings do not impede the flow of water or the passage of fish. If properly undertaken, acceptable methods may include but not be limited to the laying of logs from bank to bank, or placement of bed logs and stringers with decking. This exemption shall not extend to the construction of abutments or piers.

Trail crossings not so exempted shall be subject to the water crossing standards of Section 10.27,D, including specifically Sections 10.27,D,2, 4, 5, 6, 10 and 11.

10. In addition to the foregoing minimum requirements, provision shall otherwise be made in the construction and maintenance of roads and water crossings in order to reasonably avoid sedimentation of surface waters.

11. Written notice of all road and water crossing construction activities, except level A road projects and exempt trail crossings as provided in Section 10.27,D,9 above, shall be given to the Commission prior to the commencement of such activities. Such notice shall conform to the requirements of Section 10.16 and shall state the manner in which the water crossing size requirements of this section will be satisfied.

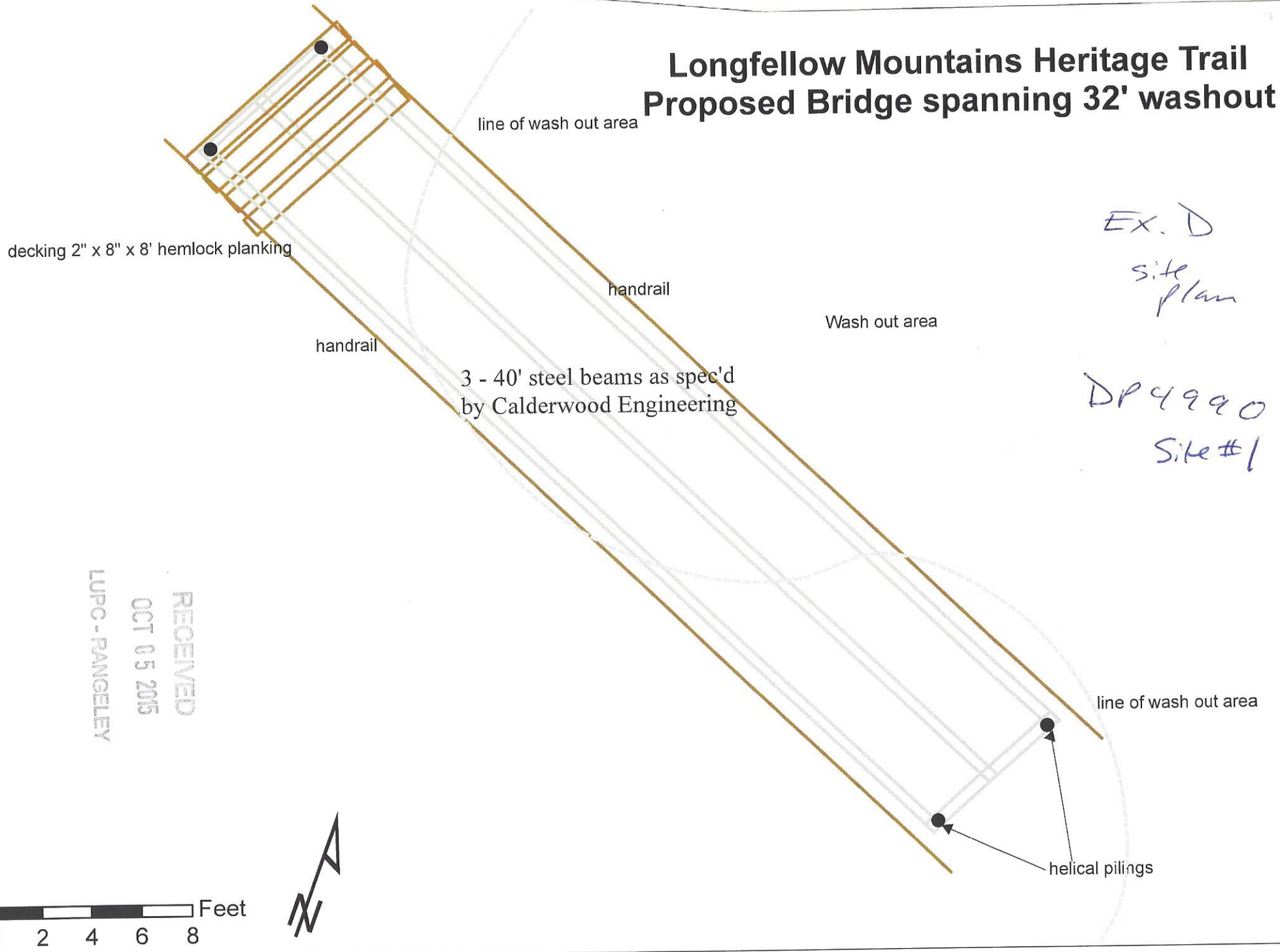
DP 4990 - Ex. A - Overall Location Map -



1 inch = 2,000 feet

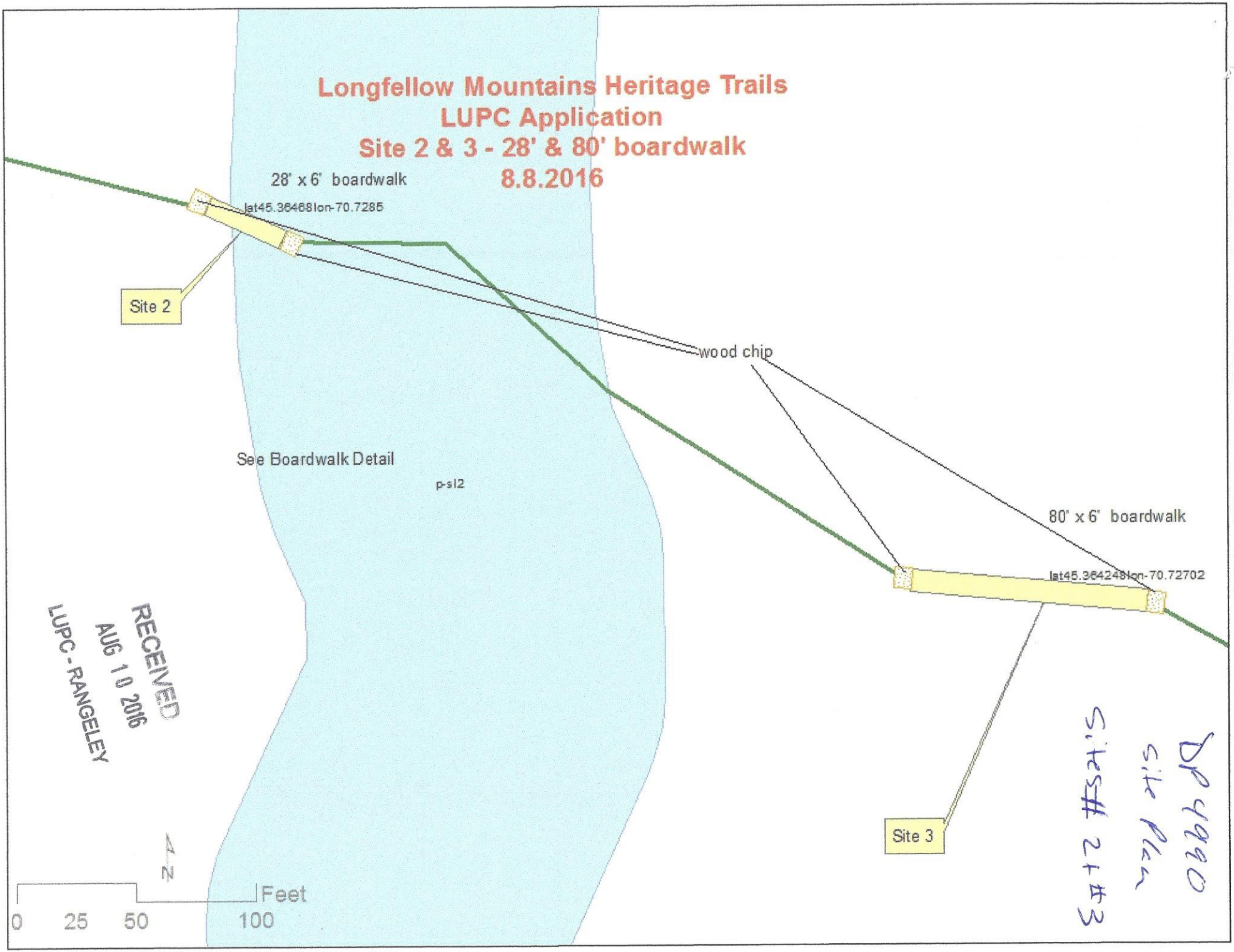
D4

Longfellow Mountains Heritage Trail
Proposed Bridge spanning 32' washout



Ex. D
site plan

DP4990
Site #1


Longfellow Mountains Heritage Trails
LUPC Application
Site 2 & 3 - 28' & 80' boardwalk
8.8.2016
28' x 6' boardwalk
lat45.36468lon-70.7285
Site 2
wood chip
See Boardwalk Detail
p-sl2
80' x 6' boardwalk
lat45.364248lon-70.72702
Site 3
RECEIVED
AUG 10 2016
LUPC - RANGELEY
N
Feet
0 25 50 100
DP 4990
site plan
Site # 2 + #3

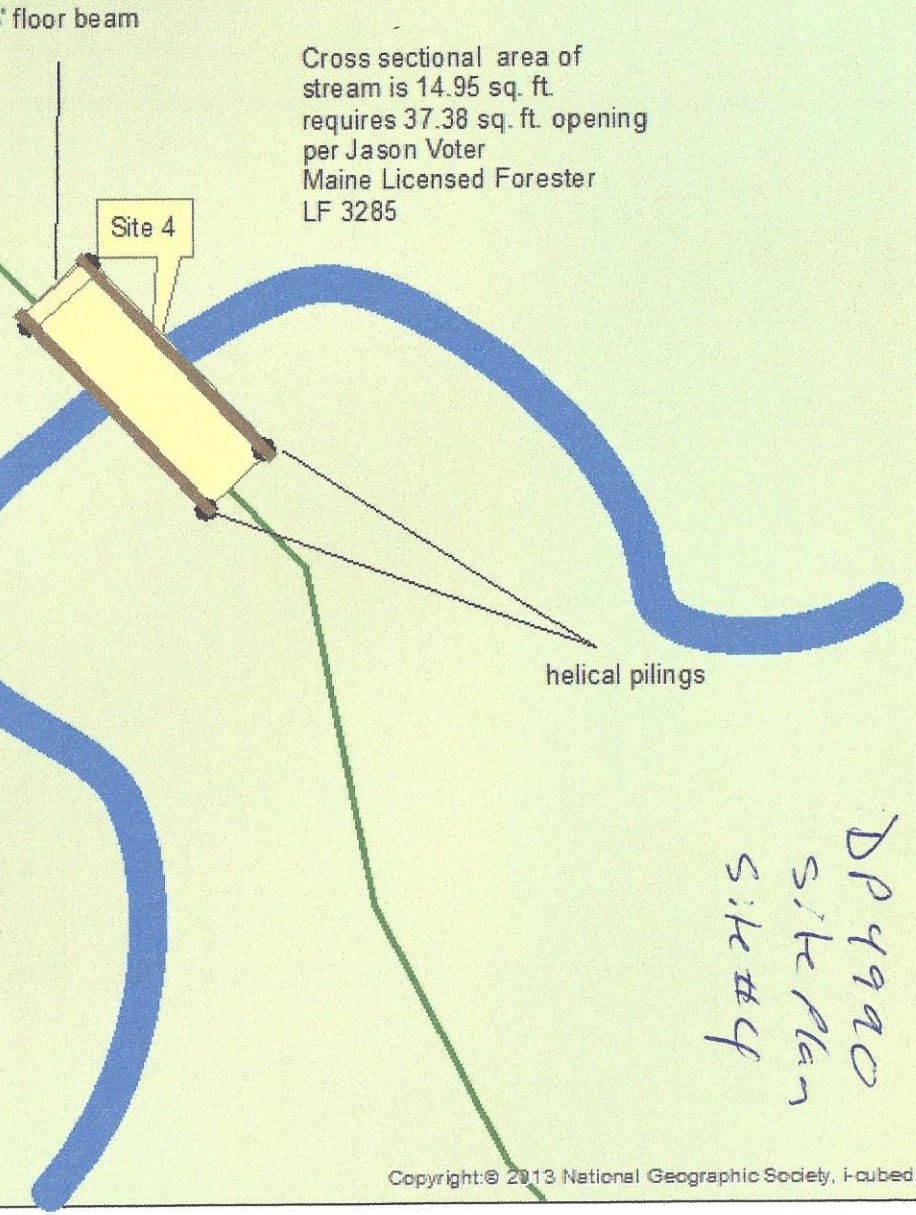
Longfellow Mountains Heritage Trails
LUPC Application
Site 4 - 15' stream crossing
8.8.2016

Stream crossing to be built in 1 section
6" X 6" piling raised 2.25' above stream
to provide minimum 2.5 cross sectional
area for flowing water

6' x 24' bridge built with 2 4" x 4" x 20' stringers
set on 6" x 6" x 6' floor beam between 2" helical pilings
on each side of the stream. Ramps on each side as necessary.

decking 2"x 6" x 6' pressure treated wood decking

15' stream crossing

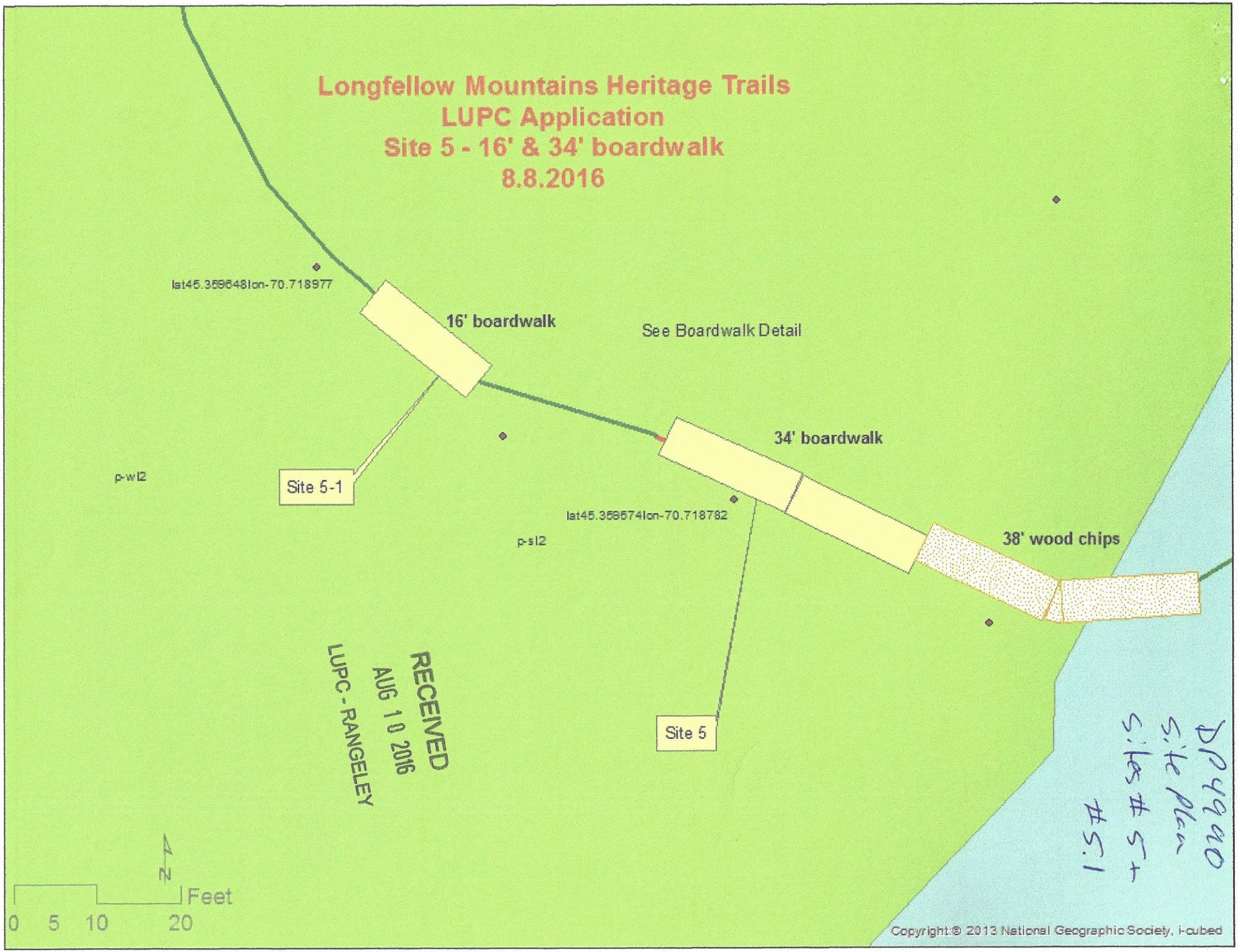


RECEIVED
AUG 10 2016
LUPC - RANGELEY

DP 4920
Site #4

Legend
- Proposed trail
- bridge
- boardwalk

Feet
0 5 10 20


Longfellow Mountains Heritage Trails
LUPC Application
Site 5 - 16' & 34' boardwalk
8.8.2016
lat45.359648lon-70.718977
16' boardwalk
See Boardwalk Detail
34' boardwalk
p-wl2
Site 5-1
lat45.359574lon-70.718782
p-sl2
38' wood chips
Site 5
RECEIVED
AUG 10 2016
LUPC - RANGELEY
N
Feet
0 5 10 20
Copyright © 2013 National Geographic Society, i-cubed
DP4940
Site plan
Sites # 5+
#5.1